

# Automobile Interior Sun Visor

Aditya Singh

BE Automobile Engineering

Chandigarh University

adityasgh420@gmail.com

Avanish

BE Automobile Engineering

Chandigarh University

avnish35a7@gmail.com

## ABSTRACT

Sun visor is the most common way of sun protection in automotive and aerospace sector. The first automotive interior sun visors were developed in 1931, since then we have seen no change in them. This paper shows some alternatives or modifications in sun visor that will increase comfort and reduce human effort.

## Keywords

Sun visors, automatic sun visor, sensors, automotive sun visor, sun protection, sun glare, anti-glare.

## 1. INTRODUCTION

Sun visors are the devices which are used to protect the driver from sun glare. These are rectangular structures which are manually operated by the operator according to its need and requirement. We have seen a lot of change in automotive sector since past years. Vehicles are getting better and better in all aspects being performance, comfort or reliability. Only change that we haven't encountered from past 88 years is in sun visors. From the invention of interior automotive sun visors in 1931 we are using the same version of it and never concerned about changing it.

Not only in automobile sector but also in Airplanes, same sun visor is used. Even being so advanced in technologies airplanes use the standard sun visors which we think need to be changed.



Positive aspects of present sun visors are:

- Cost effective (cheap)
- Easy to Assemble
- Easy to use

Negative aspects of present sun visors are:

- Irritating
- Non-user-friendly
- Cheap build
- Less Durable
- Need to be adjust all time according to sun direction

## 2. ALTERNATIVES IN MARKET

### 2.1 Magnetic Sunshade for Window



These are generally used by many people to keep the temperature inside the vehicle cooler under direct sun (usually in parking condition). Some sun shades use vacuum cups instead of magnet for easy sticking and removal. They are also helpful for UV ray protection. They are very useful for cars that are not having black films on them.

We can't use them while driving because they cover the whole windshield and side windows which reduce the overall visibility.

### 2.2 Wind Shield Tint



Tinting a glass further has 3 types. A typical light tint allows 70 percent of light to enter in. A medium tint allows about 20 percent, and a super-dark “limo tint” allows about 5 percent. Usually according to VLT (Visible Light Transmission) ratings most of the states allow only 1st type of tint which allows 70 percent of light to enter the vehicle.

Tint prevents the sun ray to enter the vehicle up to a certain limit. Still can't protect the glare cause by the sun itself so we need to use sun visor even with the tinted glass.

### 2.3 Electrically Tinted Windows and Windshield



The latest technology used by an automobile manufacturer is the use of an electro chromic glass for sun protection. It is also known as intelligent glass control system, allows operator for automatic and manual tinting of car windows. User can adjust the transparency of glass according to the outside light conditions.

## 3. ALTERNATIVES

### 3.1 Photo Chromic Sunglasses



Instead of using tinted glass and electro chromic glass we can provide a good quality photo chromic sun glass in automobiles and can name them “Driving Glasses”.

The reason why this can be a better option is;

The tinted glass can help us during day time riding but will reduce visibility during night rides.

We can also develop adjustable electro chromic sunglass. For making it more appealing we can put temperature sensor in it, displaying the interior vehicle temperature. That also helps to adjust the sunglass tint automatically.

This can be applicable not only in automotive but also in aerospace sector.

If someone find it to be a sense less option, look Rolls Royce is offering an anti bacterial, Teflon coating, engineered ‘Umbrella’ in their cars.

### 3.2 Automatic Sun Visor

This can be the best alternative for a standard automotive and aerospace sun visor. It is a programmed, software guided mechanism which controls the sun visor movement according to the input provided by the sensors. It needs no human interference until it is on autonomous mode.

Requirements:

- Electric motors
- Thermal Sensors
- Sun Detection Sensor
- Face Detection Sensor
- Electro/Photo Chromic Glass
- Modified Standard Sun Visor

Keeping it simple, we can use Sun Detection Sensor or Thermal Sensor for tracing the sun location. A Face Detection Sensor for detecting face of Operator and rider.

According to that an Electronic Control Circuit’ will control the motor movement which guide the Sun visor to adjust itself according to the sun.

We can also use an Electro chromic glass instead of regular sun visor. Its benefit is that, if the sun light intensity is low, it will have some transparency level, providing bit visibility rather than a standard sun visor.

We have started working on it. The mechanism design is in almost ready and soon will be displayed. After completion we will come up with a research paper on it. Till then stay tuned.

## 4. REFERENCES

- [1] [https://www.researchgate.net/publication/307775253\\_THE\\_DESIGN\\_OF\\_SUN\\_VISORS\\_FOR\\_AUTOMOTIVE\\_INDUSTRY](https://www.researchgate.net/publication/307775253_THE_DESIGN_OF_SUN_VISORS_FOR_AUTOMOTIVE_INDUSTRY)
- [2] <https://www.youtube.com/watch?v=7tXxrqIQigo>
- [3] [https://www.sageglass.com/en/?utm\\_source=google&utm\\_medium=paidsearch&utm\\_campaign=electrochromic&utm\\_content=electrochromic-glass&gclid=EAIaIQobChMI5ImIzr6v5AIVjiQrCh3SpAFIEAAyASAAEgJda\\_D\\_BwE](https://www.sageglass.com/en/?utm_source=google&utm_medium=paidsearch&utm_campaign=electrochromic&utm_content=electrochromic-glass&gclid=EAIaIQobChMI5ImIzr6v5AIVjiQrCh3SpAFIEAAyASAAEgJda_D_BwE)
- [4] [https://www.google.com/url?sa=i&source=images&cd=&ved=2ahUKEwj66ixvq\\_kAhWItY8KHQHqDH8QjRx6BAgBEAQ&url=http%3A%2F%2Fwww.smartglass.com%2Fnews%2Fcontinental%2F&psig=AOvVaw01551\\_PdZCL4C\\_glju\\_Xrv&ust=1567422608833262](https://www.google.com/url?sa=i&source=images&cd=&ved=2ahUKEwj66ixvq_kAhWItY8KHQHqDH8QjRx6BAgBEAQ&url=http%3A%2F%2Fwww.smartglass.com%2Fnews%2Fcontinental%2F&psig=AOvVaw01551_PdZCL4C_glju_Xrv&ust=1567422608833262)